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GAU 2839REMARKS

Claims 1-20 remain in the application. Reconsideration of the claims and entry of the present amendment are respectfully requested.

In the Office action of August 10, 2004, the drawings were objected to (37 CFR 1.83(a)) for not showing every feature of the crimp insert defined in the claims. Further, claims 1-20 were rejected under 35 U.S.C. § 112, first paragraph, for reciting subject matter not adequately described in the specification. Claims 1-20 were also rejected under 35 U.S.C. § 112, second paragraph, for using indefinite terminology. Applicants believe that objection to the drawing, as well as both of the claims rejections under 35 U.S.C. § 112, should be withdrawn for reasons set out further below.

Claims 1-3, 5-13 and 15-19 were further rejected for being anticipated under 35 U.S.C. § 102(b) by US Patent 6,390,688 to Lutzen, et al (hereafter "Lutzen"), previously cited. Claims 4, 14 and 20 were rejected under § 103(a) as being unpatentable over Lutzen. See the final Office action at pages 4-5.

Claims 1 and 10, the only independent claims in the application, are amended herein in view of formal issues raised in the Office action, and to define more clearly certain features of applicants' invention which distinguish it from the cited art. The following remarks show that all of the pending claims are now in condition for allowance.

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GAU 2839*The Present Invention*

Applicants' claimed connector assembly provides strain relief for optical fiber cables, including cables whose fiber cores have relatively hard (e.g., polymer) coatings such as the coating 24 in FIG. 2 of the present application. For example, the coating 24 may have a thickness on the order of only 15 microns.

As amended above, claim 1 calls for a connector system including a connector plug, and a crimp insert 30 having an axial bore 36 (see FIGS. 3 & 5) extending between proximal and distal ends of the insert. A first portion (D1) of the bore opens at the proximal end and has a first diameter that corresponds to an outside diameter of an outer jacket of an optical fiber cable, and second portion (D2) of the bore has a second diameter that corresponds to an outer diameter of an unjacketed end of the cable.

The crimp insert 30 is constructed and arranged to deform so that the axial bore closes uniformly about both (i) the outer jacket, and (ii) the unjacketed end of the cable when a force is applied to the insert by a corresponding set of hex jaws. This feature is illustrated in FIGS. 5 and 6 as originally filed with the application, which show the action of the hex jaws 70, 72 on annular crimp rings 38, 40 that are provided on the circumference of the insert 30. See page 10, lines 10-13 of applicants' specification. As a result, the outer jacket and the unjacketed end of the cable are restrained from axial movement with respect to the insert when joined to the connector plug. Claim 10 calls for an optical fiber cable and connector assembly, including a connector ferrule unit that has the crimp insert described above.

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Applicants respectfully traverse the statements at page 2, item 2; and at page 3, item 4, of the Office action insofar as those statements may infer that the original disclosure does not teach means for distributing the force applied by the hex jaws 70, 72 to close the insert bore uniformly about an outer jacket and an unjacketed end of a fiber optic cable. Specifically, in FIG. 6, vertical forces F exerted on the hex jaws 70, 72 are shown as urging the jaws to clamp the annular crimp ring 40 on the crimp insert 30. As clearly shown, the periphery of the crimp ring conforms in shape with the hexagonal cavity defined by the jaws, and the axial bore in the insert closes uniformly about the circumference of the cable 20.

Applicants submit that those skilled in the art will understand that when the jaws 70, 72 clamp about the annular crimp rings 38, 40, the hexagonal walls of the jaws will inherently exert forces on the crimp rings in directions substantially normal to the jaw walls, i.e., directions that are not only vertical. See the forces F' in the attached sketch. Accordingly, applicants respectfully request that the objection to the drawing and the rejections of the claims under § 112, be withdrawn.

The Cited Art

Lutzen (USP 6,390,688) discloses a strain relief connector for optical fibers that are coated, buffered, and/or jacketed with elastomeric materials. A fiber with the elastomeric coating extends through a bore of a cylindrical metallic crimp sleeve 122. The sleeve is then flattened by a long rectangular die (see Figs. 4 & 5 of Lutzen), thus collapsing the sleeve bore and deforming the cross section of the fiber coating so that the width of the coating becomes substantially larger than its initial height. See

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Lutzen, Fig. 3.

Lutzen does not disclose or suggest a crimp insert that is constructed to deform in response to a crimp force applied on the periphery of the insert in the vicinity of first and second portions of an axial bore in the insert, so that the bore closes *uniformly* about (i) an outer jacket and (ii) anunjacketed end of a fiber optic cable, as presently claimed. In Lutzen, the bore of the crimp sleeve 122 is flattened by the action of a rectangular die so as to deform the coating on an optical fiber non-uniformly, so that the width of the coating becomes substantially larger than its initial height. By contrast, applicants' crimp insert does not substantially deform an existing fiber coating or jacket in order to achieve cable retention.

Further, although Lutzen states at column 7, lines 2-3 that a feed bushing 120 (Fig. 7b) which is disposed within the sleeve 122 may also be crimped, the bore of the sleeve does not have a portion whose diameter corresponds to an outer diameter of an *unjacketed* end of a fiber optic cable, as presently claimed. To the contrary, Lutzen teaches that another cover or buffer portion 144 is disposed over that portion of the fiber which passes through the bushing 120. See column 6, lines 46 to 49, and Fig. 7d of Lutzen. Accordingly, withdrawal of Lutzen as a rejecting reference is respectfully requested.


The present amendment is proper under 37 C.F.R. § 1.116 in that no new claims are added, and two claims are amended in order to place all of the pending claims in condition for allowance. No new issues are raised that would require further consideration and/or search on the part of the Examiner. The amendment was not earlier presented because applicants did not have the benefit of the examiner's

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detailed comments set out in the final Office action.

In view of all the foregoing, claims 1-20 call for a connector system and assembly that are not taught or suggested by the cited art. Allowance of the claims and passing of the application to issue, are respectfully solicited.

Respectfully submitted,



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